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ABSTRACT

The relationship between scores on the American College Test (ACT) and grade point averages of first-time college freshmen after the first year of study was investigated by correlating ACT composite scores and grade point averages (GPAs). ACT scores and GPAs were obtained for 100 first-time freshmen at an urban state university in Illinois. There is a statistically significant, but low, correlation between ACT composite scores and GPA of college freshmen at the end of the freshman year. Findings also suggest that other intervening factors could have a predictive influence on college GPA, and that high school rank and high school GPA are among them. Findings further suggest that the university may want to examine the possibility of implementing an enhanced and multifaceted approach to the initial admission decision. One table summarizes study findings. (Contains 13 references.) (SLD)

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Beverly D. Morgan

Each year thousands of applications for admission are submitted to one of the state universities in Illinois by prospective students hoping to be selected for admission.

Admission policy dictates that students must submit an official high school transcript or General Educational Development (GED) scores and scores on the American College Test (ACT). To qualify for admission to the university, prospective students must meet specific admission requirements which have been established and approved by the Board of Governors, its governing body.

The ACT Assessment is considered an effective instrument which, combined with other determinants, is used to decide whether a prospective student will or will not be successful in college. Therefore, it is widely used by many colleges and universities across the country in deciding whether to accept or deny a student for admission.

Over the years there has been increasing debate as to whether such standardized tests are culturally and linguistically biased. There does not appear to be a movement toward abolishing the ACT Assessment as a means of predicting a student's academic performance in the first

year of college however.

The ACT (American College Test) Assessment was established in 1959. Every year hundreds of thousands of high school juniors and seniors take the ACT test which will assist them in planning their educational and career goals as they prepare to make the transition from high school to college.

Many colleges and universities use the ACT in making admission decisions, providing academic advisement, and career planning. It is also used in the areas of recruitment and retention.

The ACT comprises four tests: the English test containing 75 items; the reading test containing 40 items; the mathematics test containing 60 items; and the science reasoning test containing 40 items. Students receive twelve scores on the ACT Assessment - four test scores, seven sub-scores, and a composite score. In addition, there is an interest inventory to assess career interests and a student profile section as well as a career and educational planning map.

Today, the ACT is second only to the Scholastic Aptitude Test (SAT) with regard to the numbers of students who take the test (Ninth Mental Measurement Yearbook, 1985).

There are those who argue that standardized tests, such as the ACT, are culturally and linguistically biased, that students are over-tested, and that the three hour test is not a reliable predictor of success in college. Still others argue that there is a significant relationship between ACT scores and success in college.

Research on the relationship of ACT composite scores as predictors of success in college, no matter what the college major, seems to be rather limited. There were many studies done which focused on teacher education majors. A summary of research on the ACT composite score as a measure of predicting academic success at the college level is presented.

Fletcher (1989) examined the relationship between the Pre-Professional Skills Test (PPST) and the American College Test (ACT) for teacher education and college grade point average (GPA) and the National Teachers Examination (NTE). The PPST test was administered to all students as a requirement for admission into the teacher education programs at Tennessee Technological University since 1983. In addition, all students were required to take the ACT test. The relationship between the PPST and the ACT and measures of academic success, college GPA, and scores on the NTE were examined. The sample included 357 students enrolled at Tennessee Technological University between September 1984 and May 1989 who had taken both the PPST and the NTE prior to May 1989. Results of the analyses of 270 graduates indicates that ACT composite scores are significant predictors of performance on the PPST. Performance on the PPST is a significant predictor of performance on the NTE. Fletcher suggests that the testing of students by many teacher education programs is not necessary. None of the variables used in the study showed any significant relationship to GPA.

Fletcher recommends that when ACT scores are available and reflect an adequate performance level, PPST requirements should be waived. If

ACT scores are not available, the PPST could be used to measure proficiency. The ACT as a pre-test and the NTE as a post-test should be sufficient indicators of proficiency.

Barger (1988) conducted a study of all graduates of Eastern Illinois University from 1982 through 1986. The 9,687 subjects who comprised the population were compared on high school predictor scores (ACT and class rank), and university GPAs, cumulative GPA, junior and senior GPA, and junior and senior GPAs which were adjusted by removing professional education courses. Results of the study indicated that teacher certification graduates were found to be significantly inferior to non-certification graduates on all ACT scores. However, they were significantly superior on all university grade point averages.

In a study designed to examine the ACT assessment, Pre-Professional Skills Test (PPST), and college grade point average as predictors of student teacher classroom performance, Salzman (1990) conducted a study of 610 teacher education students completing student teaching practicums during the fall and spring semesters of 1987 through 1990 at Idaho State University. Results of the study indicated that there are relationships between the subtest and composite scores of the ACT, subtest scores of the PPST, and GPA. The highest magnitude correlations were found for PPST reading and ACT English with all other subtest scores and college grades. The data suggests the importance of verbal skills, especially reading, in relation to academic achievement. It was found that academic measures, including standardized tests and college grades were weak predictors of actual

classroom performance. Academic measures do not strongly suggest that they should be used as criteria for teacher education program admission.

Examining the value of the ACT and secondary school performance as predictors of academic performance in college, Thornell (1986) conducted a study of 100 entering freshmen at a small state university in Mississippi. Subjects were randomly selected from an alpha listing of a population of 585 entering freshmen in 1980. Records housed in the Registrars Office of the university were used to gather information on the variables being studied. Results of the study indicated significant correlations between high school rank and GPA and between ACT and GPA. No other variable was as highly correlated as the ACT composite score. Although the ACT did contribute to the prediction equation, secondary school performance was a better predictor than the ACT composite using first semester freshman GPA as a dependent variable. Findings of the study indicated that admission policies need to be changed for public universities in the state of Mississippi.

Loadman and Deville (1990) conducted a study of the NTE as a measure of general academic ability and implications for teacher education. Correlations and regression analyses were performed on data collected between 1982 and 1989 on Ohio State University teacher education graduates. Grade point average, ACT composite scores, and NTE results were correlated. Regression analyses of the data indicated that ACT was a better predictor of the NTE scores than grade point average. Data indicated that efforts to improve the quality of teacher

education at Ohio State University should focus on students with higher ACT scores.

The validity of the ACT and Descriptive Test of Language Skills (DTLS) for developmental students over a four year college program was studied by Snyder and Edmore (1983). The sample for the study was comprised of 496 students admitted to a midwestern university through a special admission program. Validity coefficients of the DTLS subtests, the ACT, and high school rank were calculated with cumulative grade point average at the end of each year of college. Findings of the study indicate that after a regression analyses for a subset of 138 of the special admission students remaining in college after four years, the ACT composite score predicted academic success more accurately than the DTLS subtests, ACT subtests, or high school rank.

Johnson and Napier (1987) conducted a study to determine the influence of locus of control and ACT scores in predicting GPAs of college freshmen at a predominantly and historically black college in the state of Mississippi. The Rotter Locus of Control Inventory was administered to 322 freshmen during the first month of school. The ACT scores and GPAs were obtained from school records at the end of the academic year. Results of the study indicate that locus of control was not significantly related to grade point average while ACT scores were.

A study done by Crawford (1989) focused on postdictions of college GPAs from high school GPAs and/or ACT composite scores compared by gender and race for 1,121 freshmen and sophomore students at a West

Virginia College. The sample included 945 white and 176 black students, and 553 males and 568 females. Significant differences in postdictions were found for race and gender with substantially greater frequencies of over/under postdictions when the ACT composite score was the only predictor variable. Significant differences between validity coefficients of two linear regression models were found. One model used combined ACT composite scores and high school GPA to predict college GPA, while the other made a direct prediction of college GPA from the ACT composite scores. Results of the former model indicated that high school GPA contributed significantly to prediction efficiency. There were significant race and gender differences between high school GPAs, college GPAs, and ACT composite scores in all state universities and colleges. College GPAs were underpostdicted for female white students and over postdicted for male students.

Sibert (1989) studied the relationship among the ACT, PPST, NTE, ACT composite, and the final GPA in the major field of study as well as the overall GPA. Subjects were 615 graduates of teacher education programs in Tennessee. Test scores and GPA were obtained from college records. High correlations were found between the NTE General Knowledge Test and the ACT composite score. Results of the study indicate that ACT composite score and the PPST reading scores were the best predictors of the NTE and GPA. The ACT composite score weighed the most in eight of the regression equations.

In a study conducted by Sawyer and Maxey (1981) the predictive validity of the ACT Assessment was compared for black, hispanic, and

white students. The study was based on grade data submitted by colleges participating in ACT's predictive research services for the 1977-78 academic year and for one or more of the academic years 1973-74, 1974-75, and 1975-76. A random sampling of 271 colleges, stratified according to racial/ethnic composition, was selected. It was found that ACT test scores and self-reported high school grades were relatively accurate predictors of freshman GPA for whites, blacks, and hispanics. Grades for blacks tended to be over-predicted.

In another study conducted by Sawyer and Maxey (1981), test score and grade data were collected from a random sampling of 205 colleges. The purpose of the study was to examine the predictive reliability of the ACT Assessment for institutions with different size student populations, degree levels, and ethnic composition. It was found that at colleges using the ACT as a predictor of college GPA, freshman GPA can be predicted to within 1.0 grade points for approximately 88% of all the students; for about 57% of all students, GPA can be predicted to within 0.5 grade points; and GPA can be predicted to within 0.2 grade points for about 24% of all students. It was concluded that GPA predictions for college freshmen based on the ACT Assessment are accurate enough for use in counseling, placement, and selection for admission.

Summary

Research suggests that a great deal of the literature regarding the ACT composite as a predictor of success in college focuses on teacher education programs. Research further suggests that there

is a rather significant relationship between ACT composite scores as predictors of success on various examinations. However, no significant relationship was found between ACT scores and the academic success of teacher education majors. Research does provide enough data which emphasizes the relative importance of the ACT composite score as a reliable measure in predicting academic success. However, not very many studies were found that focused on the ACT composite score as a predictor of success in the first year of college for first time freshmen. Since the first year of college is considered the most critical one and because of lack of data related to the ACT composite score as a predictor of success at the college level for first time freshmen, it is evident that further research is necessary in this area in order to provide a more accurate frame of reference for those involved in the recruitment, admission, and retention processes.

The purpose of this study was to examine the relationship between ACT composite scores and grade point averages of first time college freshmen after the first year of study by correlating ACT composite scores and grade point averages.

Since the ACT composite score requirement will increase over the next several years, there needs to be additional exploration of the importance of the ACT Assessment in predicting success in college.

Recent mandates by the Illinois Board of Higher Education delineate specific high school subject/unit requirements that students should have completed before being admitted to any of the state universities in Illinois. Such requirements may force enrollment managers to be

more creative in terms of making an admission decision. If current trends continue, the ACT Assessment may become a secondary measure compared to other means such as requiring an interview, a written personal statement, or student portfolio.

Given the widespread use of the ACT Assessment in the admission process, there will continue to be growing debate on its effectiveness in measuring the academic success of college students.

Results of this study lead to the acceptance of the assertion that there is a correlation between ACT composite scores and GPA at the end of the freshman year for first-time college freshmen. However, further research is warranted in this area to determine the effectuation of other academic variables contained in the high school record on the prediction of college GPA.

Procedures

The study included 100 first time freshmen entering the university in the Fall 1991 term and who were enrolled full-time during the academic year, selected on a random basis. The university included in this study is located in a predominantly middle class, black community.

Act scores at the time of entrance and GPA were obtained from university records. The Pearson Product-Moment Correlational Coefficient was employed at the .05 level to determine the statistical significance of the findings.

Results

According to results shown in Table I, there is a statistically significant, but low, correlation between ACT composite scores and grade point averages of college freshmen at the end of the freshman year.

Table I

Means, Standard Deviations, and the Pearson Product-Moment Correlation Coefficient for College Grade Point Average

	Mean	S.D.	Correlation with ACT
ACT (N=100)	17.03	2.92	
GPA (N=100)	2.34	.76	.33*

*significant at the .05 level

The findings also suggest that there may be other intervening factors other than the ACT composite score that could have a predictive influence on the college GPA. They further suggest that high school rank and high school GPA are also important factors in predicting success in college.

The tests of educational development which comprise the ACT Assessment measure a wide range of academically significant knowledge and skills. The tests emphasize reasoning, analyses, problem solving, and integration of learning proficiencies to the kinds of tasks that a student will be expected to perform at the college level.

The high school records of students and scores on the ACT Assessment seem to be inextricably linked. If students do well in high school, it follows that they are likely to do well on the ACT. If they do well on the ACT, it follows that they will be successful in college. Findings of this study suggest that a three hour test does not correlate highly with college GPA which further suggests that those in higher education responsible for recruitment, admission, and the retention processes identify other variables which would lead them to make more accurate predictions of student success.

Findings of this study further suggest that the university may want to examine the possibility of implementing an enhanced multi-faceted approach in making the initial admission decision and, over the long haul, whether such an approach will prove more reliable in predicting academic success.

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